TAP100 Wireless

The information in this page is updated in accordance with firmware version **TAP100_R_00.07.07.1**.

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Contents

Summary

The **Wireless** section of the Network tab can be used to manage and configure WiFi Access Points and WiFi Stations (clients) . This chapter of the user manual provides an overview of the Wireless section for TAP100 devices.

Wireless

TAP100 devices support IEEE 802.11b/g/n and 802.11e_WMM wireless technologies.

SSIDS

The **SSIDs** section is used to configure your wireless access points (AP) and wireless clients (STA).

Above is the overview of the SSIDS Overview window. It displays active access points. Here you can turn on or off your WiFi interfaces, remove them or start configuring by clicking on

`Edit` button on the right side of interface.

Radio Settings

The **Radio Settings** section is used for configuring WiFi hardware parameters. You can find this section in the Network → Wireless → Radio page.

General Setup

The **General Setup** section is used to turn a wireless device on or off, select the operating frequency (WiFi mode and channel), transmit power and define a country code.

A wireless 2.4 GHz WiFi channel requires a signaling band roughly 22 MHz wide, radio frequencies of neighboring channels numbers significantly overlap each other. Choose a WiFi channel according to the busyness of other channels. You can download a free WiFi analyzer app on your phone, laptop or other WiFi device and check which channel is the least populated.

Many home networks utilize routers that by default run on channel 6 on the 2.4 GHz band. Neighboring WiFi home networks that run over the same channel generate radio interference that can cause significant network performance slowdowns for users. Reconfiguring a network to run on a different wireless channel helps minimize these slowdowns. Therefore, pick a channel with no other active Access Points and preferably one that has no active Access Point on two adjacent channels on each side as well. If you don't feel like doing this, set the 'Channel' field to *Auto* and the device will pick the least busy channel in your location automatically.

Field	Value	Description
Enable	off | on; default: **on**	Turns Wireless device on or off.
Operating Frequency (2.4 GHz)		
Mode	N | Legacy; default: **N**	Wireless N (802.11n) supports a maximum theoretical transfer rate of 300mbps with 2 antennas. It can reach up to 450 Mbps with 3 antennas. Though typical speeds are more accurately around 130 Mbps. The legacy standards include 802.11a, 802.11b, and 802.11g.
Channel	Auto | 1 (2412 MHz) | 2 (2417 MHz) | 3 (2422 MHz) | 4 (2427 MHz) | 5 (2432 MHz) | 6 (2437 MHz) | 7 (2442 MHz) | 8 (2447 MHz) | 9 (2452 MHz) | 10 (2457 MHz) | 11 (2462 MHz); default: **Auto**	A wireless 2.4 GHz WiFi channel requires a signaling band roughly 22 MHz wide, radio frequencies of neighboring channels numbers significantly overlap each other. Therefore, pick a channel with no other active Access Points and preferably one that has no active Access Point on two adjacent channels on each side as well.

Width	20 MHz | 40 MHz; default: **20 MHz**	A 40 MHz channel width bonds two 20 MHz channels together, forming a 40 MHz channel width; therefore, it allows for greater speed and faster transfer rates. But not if those channels are crowded with noise and interference. In crowded areas with a lot of frequency noise and interference, a single 20MHz channel will be more stable. 40MHz channel width allows for greater speed and faster transfer rates but it doesn't perform as well in crowded areas.
Transmit Power	[13%...100%]; default: **100 %**	The transmit power of an access point radio is proportional to its effective range – the higher the transmit power, the more distance that a signal can travel, and/or the more physical materials that it can effectively penetrate and still have data successfully resolved at the receiver.
Country code	country code; default: **00 - World**	SO/IEC 3166 alpha2 country codes as defined in ISO 3166-1 standard.

Advanced Settings

The **Advanced Settings** section is used to configure how the wireless Access Point will work from a hardware perspective.

Field	Value	Description
Operating Frequency (2.4 GHz)		
Allow legacy 802.11b rates	off | on; default: **on**	Turn on to enable connections that uses legacy 802.11b standard.
Distance Optimization	integer [0..65535]; default: **none**	HT Distance to farthest network member in meters.
Fragmentation threshold	integer [256..2346]; default: **none**	The smallest packet size that can be fragmented and transmitted by multiple frames. In areas were interference is a problem, setting a lower fragment threshold might help reduce the probability of unsuccessful packet transfers, thus increasing speed
RTS/CTS threshold	integer [0..2347]; default: **none**	RTS/CTS (Request to Send/Clear to Send) are mechanisms, used to reduce frame collisions introduced by the hidden node problem. It can help resolve problems arising when several access points are in the same area, contending
Force 40MHz mode	off | on; default: **off**	Always use 40MHz channels even if the secondary channel overlaps. Using this option does not comply with IEEE 802.11n-2009!
Beacon interval	integer [15..65535]; default: **none**	Beacon signal interval in seconds.

Interface Configuration

The **Interface Configuration** section is used to configure the parameters of Wireless Access Points.

You can find this section by clicking the 'Edit' button next to a wireless device (<u>not an interface</u>) in the Network → SSIDs page:

General Setup

The **General Setup** tab contains basic options for SSID and network interface.

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Field	Value	Description
Enable	off | on; default: **on**	Enables or disables WiFi interface.
SSID	Factory SSID is different for every device; default:	Service Set Identifier.
Password	string; default: **none**	• Custom passphrase used for authentication (at least 8 characters long). • Another option is to use the 'Dice' icon, which generates random passwords.
Encryption	No encryption | WPA-PSK/WPA2-PSK Mixed Mode | WPA2-PSK | WPA2-EAP | WPA2-EAP/WPA3-EAP Mixed Mode | WPA3-EAP | WPA2-PSK/WPA3-SAE Mixed Mode | WPA3-SAE | OWE; default: **WPA2-PSK**	The type of encryption used on this Wireless Interface. Opportunistic Wireless Encryption (**OWE**) - no password is required and all wireless traffic is encrypted (safer than **No Encryption**).
VLAN ID	integer [1..4094]; default: **Default**	Choose default or define a network VLAN ID.
802.11r Fast Transition	off | on; default: **off**	Enables fast roaming among access points that belong to the same Mobility Domain
Mesh mode		
Mesh ID	integer; default: **none**	Mesh network identifier.
Password	string; default: **none**	• Custom passphrase used for authentication (at least 8 characters long). • Another option is to use the 'Dice' icon, which generates random passwords.

Additional Settings

Field	Value	Description
Access point		
Hide SSID	on | off; default: **off**	Hide Service Set Identifier
Isolate Clients	off | on; default: **off**	Prevents client to client communication on the same subnet.

802.11v BSS Transition Management	on | off; default: **off**	A suggestion (or advice) given to a client, which the client can choose to follow or ignore
802.11k Radio Resource Measurement	on | off; default: **off**	Helps devices search quickly for nearby APs that are available as roaming targets by creating an optimized list of channels.
Disassociate On Low Acknowledgement	off | on; default: **on**	Allow AP mode to disconnect stations/clients based on low Acknowledgement condition.

MAC Filter

The **MAC Filter** tab is used for setting up rules that allow or exclude devices with specified MAC addresses from connecting to your WiFi network. This tab is only visible when Wireless interface Mode is set to **Access Point**.

Field	Value	Description
MAC-address filter	Disable | Allow listed only | Allow all except listed; default: **Disable**	Defines how the MAC Filter should function. - **Allow listed only** – only allows devices with specified MAC addresses to connect to your Wireless Access Point. - **Allow all except listed** - blocks devices with specified MAC addresses from connecting to your Wireless Access Point.
MAC-List	MAC; default: **none**	List of MAC addresses to be included or excluded from connecting to your Wireless Access Point.
Remove from whitelist	off | on; default: **off**	Enables MAC removal from whitelist when device reaches IP block counter.

Advanced Settings

Field	Value	Description
Access point		
Short Preamble	off | on; default: **on**	Uses Short Preamble, it uses shorter data strings that adds less data to transmit the error redundancy check which means that it is much faster.
DTIM interval	seconds; default: **none**	Delivery Traffic Indication Message Interval.
Time interval for rekeying GTK	seconds; default: **none**	Period of time in between automatic changes of the group key, which all devices on the network share.
Disable Inactivity Polling	off | on; default: **off**	Inactivity polling can be disabled to disconnect stations based on inactivity timeout so that idle stations are more likely to be disconnected even if they are still in range of the AP.

Station inactivity limit	seconds; default: **none**	Station inactivity limit in seconds. If a station/client does not send anything in st time frame, an empty data frame is sent to it in order to verify whether it is still in range. If this frame is not acknowledged, the station will be disassociated and then deauthenticated.
Maximum allowed Listen Interval	positive integer; default: **none**	Association will be refused if a client/station attempts to associate with a listen interval greater than this value.
WMM Mode	off | on; default: **on**	Wi-Fi Multimedia (WMM), previously known as Wireless Multimedia Extensions (WME), is a subset of the 802.11e wireless LAN (WLAN) specification that enhances quality of service (QoS) on a network by prioritizing data packets according to four categories.
Hide SSID	off | on; default: **off**	Hide Service Set Identifier.

Fast Transition

The **Fast Transition** tab is only available when in **General setup** section **802.11r Fast Transition** option is enabled.

Field	Value	Description
NAS id	string; default: **empty**	Used for fast transition and Radius server.
Mobility Domain	HEX string; default: **empty**	4-character hexadecimal ID
Reassociation Deadline	integer [1000..65535]; default: **empty**	Time units (TUs / 1.024 ms)
FT protocol	FT over DS | FT over Air; default: **FT over DS**	Defines how nagotiation will happen using Fast Transition protocol.

WiFi QR codes

Each WiFi interface has a specially designed QR code that contains information about the SSID and password of the WiFi network. After pressing the button , a QR code appears with the network's SSID and password, which you can download locally by pressing the 'Download' button. If you only want a QR code without additional information, uncheck the 'Include credentials' box.